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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/802,791	03/08/2001	Nicholas F. Borrelli	SP00-139	8335

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Svetlana Short
Corning Incorporated
SP-TI-3-1
Corning, NY 14831

EXAMINER
KAO, CHIH CHENG G

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 03/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/802,791	BORRELLI ET AL.
	Examiner	Art Unit
	Chih-Cheng Glen Kao	2882

-- The MAILING DATE of this communication appears on th cover sh et with th correspond nce address

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 January 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *13 January 2003* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-4 and 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ainslie et al. (US Patent 4936650) in view of Auzel et al. (US Patent 5858891).

2. With regards to independent claims 1 and 7, Ainslie et al. discloses an optical amplifier (Abstract, lines 1-2) comprising an input (Fig. 3, #33), a length of glass-ceramic rare earth doped fiber coupled to the input (Fig. 3, #30) including a plurality of crystallite (Abstract, lines 1-3) coupled with an optical pump (Fig. 3, #34), an output (Fig. 3, #35), and an optical component between the input and output (Fig. 3, #37).

However, Ainslie et al. does not disclose at least 90% of dopant situated within crystallites or essentially all of rare earth dopant in microcrystalline.

Auzel et al. teaches at least 90% situated within crystallites (Abstract, lines 4-5, and col. 2, lines 49-51)

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have at least 90% of dopant of Auzel et al. with the device of Ainslie et al., since one would be motivated to include the dopant in the glass-ceramic fiber core for high

effective sections and good quantum efficiencies as shown by Auzel et al. (col. 1, lines 10-16) when a signal is transmitted through.

3. With regards to claims 2, 3, 9, and 10, Ainslie et al. discloses the crystallite less than 100nm (col. 4, lines 20-22).

4. With regards to claims 6 and 8, Ainslie et al. discloses the dopant greater than 100ppm of Er (col. 4, lines 32-36)

5. Regarding claim 4, Auzel et al. in view of Ainslie et al. suggests a device as recited above.

However, Auzel et al. does not disclose crystals less than 10nm.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have crystals less than 10nm with the suggested device of Auzel et al. in view of Ainslie et al., since where in the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. One would be motivated to have the crystals less than 10nm in order to exhibit the required optical transparency, which is most appropriate for laser and optical amplification applications as shown by Auzel et al. (col. 2, lines 37-40) instead of larger crystals, which will cause optical scattering which is unsuitable for a laser as shown by Auzel et al. (col. 1, lines 47-50).

6. With regards to claim 11, Ainslie et al. in view of Auzel et al. suggests a device as recited above.

However, Ainslie et al. does not disclose at least 95% of dopant situated within crystallites.

Auzel et al. teaches at least 95% situated within crystallites (Abstract, lines 4-5, and col. 2, lines 49-51)

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have at least 95% of dopant of Auzel et al. with the device of Ainslie et al., since one would be motivated to include the dopant in the glass-ceramic fiber core for high effective sections and good quantum efficiencies as shown by Auzel et al. (col. 1, lines 10-16) when a signal is transmitted through.

7. With regards to claim 12, Ainslie et al. in view of Auzel et al. suggests a device as recited above. Ainslie et al. further discloses essentially none of the dopant in the surrounding glass (Fig. 2, and col. 3, lines 44-54)

However, Ainslie et al. does not disclose essentially all rare earth dopant in microcrystalline.

Auzel et al. teaches essentially all (Abstract, lines 4-5) of the rare earth dopant in microcrystalline.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have essentially all dopant as microcrystalline of Auzel et al. with the device of Ainslie et al., since one would be motivated to include the dopant in the glass-ceramic

fiber core for high effective sections and good quantum efficiencies as shown by Auzel et al. (col. 1, lines 10-16) when a signal is transmitted through.

8. Claims 5 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ainslie et al. in view of Auzel et al. as applied to claims 1 and 7 above, and further in view of Bange et al. (WO 98/54607).

9. With regards to claims 5, 14, and 15, Ainslie et al. in view of Auzel et al. suggests a device as recited above.

However, Ainslie et al. does not disclose emission and absorption lines of glass-ceramic fiber narrower than a precursor or similar glass.

Bange et al. teaches emission and absorption lines of glass-ceramic fiber narrower than the precursor or similar glass profile (Fig. 2) or the emission profile of the glass-ceramic is narrower than the profile of the glass or precursor glass (Fig. 2).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the emission lines of Bange and the absorption lines with the suggested device of Ainslie et al. in view of Auzel et al., since these lines are considered intrinsic properties of the different chemical compositions themselves. Something which is old does not become patentable upon the discovery of a new property. The claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. One would be motivated to have these emission lines along with the absorption lines for higher optical clarity as shown by Bange et al. (Page 1, lines 9-16).

10. With regards to claim 16, Ainslie et al. in view of Auzel et al. suggests a device as recited above.

However, Ainslie et al. does not disclose absorption lines of glass-ceramic fiber narrower than a precursor or similar glass nor narrower peaks at 1320 to 1360 nm

Bange et al. teaches absorption lines of glass-ceramic fiber narrower than the precursor or similar glass profile (Fig. 2).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the lines of Bange with the suggested device of Ainslie et al. in view of Auzel et al., since these lines are considered intrinsic properties of the different chemical compositions themselves. Something which is old does not become patentable upon the discovery of a new property. The claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. One would be motivated to have these emission lines along with the absorption lines for higher optical clarity as shown by Bange et al. (Page 1, lines 9-16).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have 1320 to 1360 nm peaks with the suggested device of Ainslie et al. in view of Auzel et al. and Bange et al., since finding the optimum or workable range involves only routine skill in the art. It would have just been a matter of engineering efficiency to fine tune the waveguide for lasers in a type of system such as telecommunications in the 1300nm range as implied from Bange et al. (Page 4, lines 15-16). One would be motivated to use optical waveguides with peak emissions in a range to send a stronger signal.

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ainslie et al. in view of Auzel et al. as applied to claim 7 above, and further in view of Arima (US Patent 6217204)

Ainslie et al. in view of Auzel et al. suggests a device as recited above.

However, Ainslie et al. does not disclose a filter.

Arima teaches a filter (Fig. 1, #10).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the filter of Arima with the suggested device of Ainslie et al. in view of Auzel et al., since one would be motivated to have the filter to reduce noise as shown by Arima (col. 1, lines 61-67).

12. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ainslie et al. in view of Auzel et al. as applied to claim 7 above, and further in view of Samson et al. (WO 98/02388).

Ainslie et al. in view of Auzel et al. suggests a device as recited above.

However, Ainslie et al. does not disclose a shift in ESA from 1320 to 1360 nm.

Samson et al. teaches ESA shifting (Page 3, lines 1-5).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to have the shifting of Samson et al. with the suggested device of Ainslie et al. in view of Auzel et al., since one would be motivated to shift ESA to avoid compromising on efficiency as implied from Samson et al. (Page 1, lines 10-11).

Secondly, it would have been obvious to one having ordinary skill in the art at the time the invention was made, to have shift from 1320 to 1360 nm with the suggested device of Ainslie et al. in view of Auzel et al. and Samson et al., since finding the optimum or workable range involves only routine skill in the art. Again, one would be motivated to shift ESA to avoid compromising on efficiency as implied from Samson et al. (Page 1, lines 10-11).

Response to Arguments

13. The objection to the drawings and claims have been withdrawn in light of the amendment filed 1/13/03.

14. Applicant's arguments with respect to claims 1-17 have been considered but are not persuasive.

With regards to claims 1, 7, and 13, and Auzel et al., the 90% is not related to the molar proportion, but to the percentage of dopant situated within the crystallites, (i.e. "rare-earth ions are advantageously present in the microcrystallites", col. 2, lines 49-51).

With regards to claim 4, the Applicant notes that not "all crystals can be made to be less than 10nm", which implies that there are crystals that can be made less than 10nm.

With regards to claim 5, Bange et al. discusses the spectral gain bands as being wider (Page 13, line 15), not the emission and absorption line shapes as narrower as seen in Figure 2.

With regards to claim 17, the claim does not specifically limit shifts in the ESA spectrum to only glass-ceramic materials.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (703) 605-5298. The examiner can normally be reached on M - Th (8 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

gk
March 21, 2003

SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800